

THE LARVA OF A SPECIES OF THE CASSIDIDÆ (COLEOPTERA)

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Among the material collected by the senior author in the course of a recent collecting expedition in Mexico there were included larvæ belonging to some species of the Chrysomeloid family Cassididæ. Although no adults of this were obtained and consequently the identification of the species is not possible, the specimens are of sufficient interest to justify some study of them. An examination of the available literature dealing with the immature stages of this group shows that very few, if indeed any, of the larval stages have been described with reference to their more minute details although there exist most excellent descriptions of their general features in the work of Muir and Sharp and of Schultze. It appears, moreover, as far as may be determined from the literature, that the particular species represented in this collection has certain peculiarities not common to all the species of the family.

It is therefore as an extension of the knowledge of the form and structure of the larval stages of this family that the following notes are presented. The junior author is responsible for the figures and the senior author for the initiation of the paper and its actual writing.

Material examined. Two apparently fully grown larvæ, found feeding on *Cordia* sp. at Manzanillo, Mexico, November 5, 1925. A species of this family, *Eurypepla jamaicensis* (L.), has been recorded as feeding upon plants of this genus in the West Indies and Florida and it is possible that the specimens at hand represent the same or congeneric form.

Habit. Occurring upon the surface of the leaves. In life of a pale green color except for the dorsum which is dark brown or black. The excremental mass, which is carried attached to the caudal process, forms a compact lump composed of the intertwining coils of fœces and entirely enclosing the exuviae. Apparently this mass is subject to loss of material for a careful examination of these two specimens revealed only a portion of the series of cast skins, one specimen showing only the skin of the fourth stage and the head of the third, the

other showing the skin of the fourth and the heads of the second and third stages.

The assumption that is here made concerning the numbers of the stages is based upon published observations in the case of other species and upon deductions drawn from the comparative sizes of the head capsules.

Fifth larval stage (Fig. 1, A). Length on slide 1-1.3 cm. Lateral appendages fleshy, rather than spiny as described for other species, and pale-colored except for the extreme tips of the main trunks which are black, destitute of all but a very few minute setæ. These appendages are arranged as follows: prothorax with four on each side, mesothorax and metathorax with two, each abdominal segment up to and including the eighth with one.

Body terminating in a relatively huge, club-shaped caudal process which probably represents the produced notum of the ninth segment and may involve the notum of the eighth as well. At the tip of this caudal process is a pair of short processes that possibly represent the appendages of the ninth segment.

Spiracles quite conspicuous, confined to the mesothorax and to the first seven abdominal segments and placed on the dorsum at the base of the lateral appendages; with no peculiarities of structure.

Dorsum of the abdomen from about the center of the pronotum to the posterior margin of the seventh abdominal segment and within the line of the spiracles chitinized in a peculiar fashion, the pigmentation being laid down in the form of a mosaic of minute plates which are closely spaced (Fig. 1, G). The caudal process is heavily and uniformly chitinized throughout. Ventral side of the body entirely membranous except for a series of small chitinized patches on the fourth to eighth abdominal segments. These likewise are composed of a mosaic of small plates, but the plates terminate in a small, free spine (Fig. 1, H).

The antennæ (Fig. 1, C) are two-segmented. The eyes are represented by four ocellanæ (using MacGillivray's term) on each side behind the antennæ (Fig. 1, B). Of the mouthparts the labrum is as shown in Fig. 1, I; the mandibles (Fig. 1, J) are stout and four-toothed, the teeth with their margins mi-

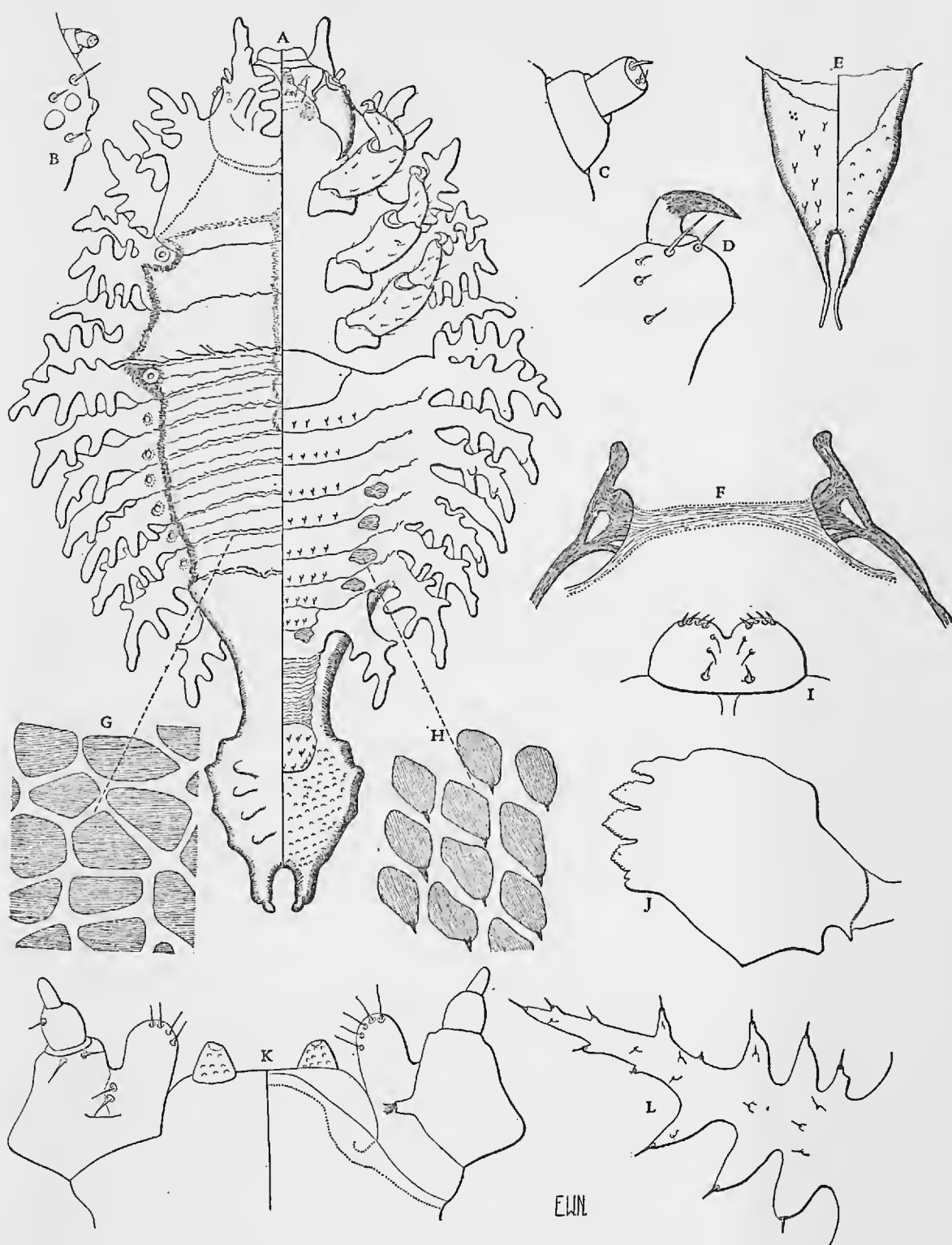


FIGURE 1

Larva of undetermined Cassidid beetle. A, fifth stage; B, ocellanæ from ventral aspect; C, antenna; D, claw and apex of tibia; E, caudal process of fourth stage; F, tentorium of fifth stage; G, portion of derm of dorsum showing mosaic pattern; H, portion of derm of venter; I, labrum; J, mandible; K, labium and maxillæ, left half ventral (outer) aspect, right half dorsal (inner) aspect; L, lateral appendage of fourth stage.

nutely serrate; the maxillæ and the labium are closely united (Fig. 1, K), the former with a single lobe and with two-segmented palpi, the latter consisting of a single broad lobe which bears very short, one-segmented palpi. The tentorium (Fig. 1, F) is a transverse bar which unites at each side with the chitinous margin of the head capsule bordering the membranous gular region.

The legs are short and stout, without trochanter and without a tarsus, the claw apparently arising from the tip of the tibia (Fig. 1, D).

Ventral side of the abdomen membranous, with a single row of small setæ, which are borne on small tubercles, in the mesal region of each segment. Rectum capable of eversion, the anal region with numerous small setæ on small tubercles.

Fourth stage. In the characters of the head and legs entirely resembling the fifth stage but differing in having the lateral processes black, heavily chitinized and spine-like rather than fleshy (Fig. 1, L). The tip of each minor process bears a single stout seta. Anal process (Fig. 1, E) shorter and more slender than in the fifth stage and terminating in a fork, the apical portions of which are membranous.

Second and third stages. Of these only heads are available, these differing from the other stages only in size.

RULES OF ZOOLOGICAL NOMENCLATURE

The Biological Society of Washington has placed all interested in entomological nomenclature under lasting obligations by the republication of the International Rules of Zoological Nomenclature, with a summary of Opinions 1 to 90, in Vol. XXXIX of their Proceedings (pp. 75-104). We understand that extras of this reprint can be obtained at a nominal cost. Virtually all our working entomologists follow these Rules, or try to do so. The sentiment regarding the "Opinions" perhaps is not quite as unanimous. A few of these are not accepted by certain of our most capable students and probably never will be. Such are Nos. 46 and 79, in the first of which the wording is obscure, the second is too "Rigidly construed" to be logical. With a few exceptions these "Opinions" are most welcome as a help in stabilizing nomenclature.—E. P. Van Duzee.